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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,926	09/18/2001	Catherine Mallardeau	00-GR1-374	9396

23334 7590 11/14/2002

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EXAMINER

MAGEE, THOMAS J

ART UNIT PAPER NUMBER

2811

DATE MAILED: 11/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/955,926

Applicant(s)

MALLARDEAU ET AL.

Examiner

Thomas J. Magee

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 27-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Claims 1 – 23 and 27 – 29 in Letter No. 7 of August 22, 2002 is acknowledged.

### ***Claim Rejections – 35 U.S.C. 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant clearly recites in the specification, steps for inclusion of the passive capacitor component in the integrated circuit, but, in contrast, does not recite any description of steps to be deployed in incorporating an inductor in the circuit.

3. Claims 27 – 29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant recites in the claims of the instant application,

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"a machine-readable medium encoded with a program for fabricating an integrated circuit," but does not provide details on the actual program or contents, either in the specification or in the claims. It is not possible for Examiner to make a judgment on these claims without the actual program and detailed descriptions of content, methods, and procedures.

***Claim Rejections – U.S.C. 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4 – 9, and 11 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura (US 6,333,535 B2) in view of Wilson et al. ("Handbook of Multi-level Metallization for Integrated Circuits," Noyes Publ., Westwood, New Jersey (1993) pp. 157, 868).

6. Regarding Claims 1, 2, and 5, Okumura discloses (Col. 25, lines 34 – 42; Col. 26, lines 1 – 40) a circuit containing first, second, and third insulating layers stacked on a semiconductor substrate with polysilicon plugs (31) connecting a polysilicon plate (19) (See Figure 10A) of a capacitor from the area of a junction (71), where the capacitor is confined within the dielectric layer. Okumura does not disclose the terminal to be composed of metal, but Wilson et al. disclose (p.157, 158, 2<sup>nd</sup> and 1<sup>st</sup> para.) the use of tungsten as a notoriously well-known material used for plugs and interconnects. Hence,

it would have been obvious at the time of the invention to add Wilson et al. to Okumura to obtain metal plugs connecting active and passive components of the circuit.

7. Regarding Claims 4 and 6, Okumura does not disclose thicknesses of the planar insulating layers. However, these are well within the confines of current art and consistent with Okumura. It would have been obvious to one having ordinary skill in the art at the time of the invention to form the insulating layers having the claimed thicknesses, since it has been held that where the general conditions of a claim are met, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233 and In re Daily, 93 USPQ 47 (CCPA 1966), the court held that changes in the size and shape of parts of an invention, in the absence of an unexpected result, involves routine skill in the art.

The use of tungsten for plugs is an obvious addition to Okumura, as mentioned above.

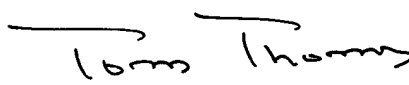
8. Regarding Claims 7 – 9, and 11 –23, Okumura discloses a circuit with a plurality of components and connections made above transistors in the substrate within insulating layers (Col. 25, lines 34 – 42; Col. 26, lines 1 – 36), where a first plug or terminal passes completely through the planarized insulating layer, connecting an active area (81) (See Figure 10B) to an interconnect and a second terminal (31) (Fig. 10A) connects an active area (71) to a capacitor within an upper insulating layer. A third terminal

passes completely through the first insulating layer (13, 16) (Fig. 10B), horizontally connecting active areas of the circuit as a bit line. As mentioned earlier, Okumura does not disclose the use of tungsten metal plugs or terminals. However, Wilson et al. disclose (p. 157, 2<sup>nd</sup> paragraph, p. 868, 1<sup>st</sup> paragraph) the use of tungsten metal, which has been established as a notoriously well-known material for plugs and interconnects. As mentioned above, the ranges of thickness for insulating layers is within the limits of prior art and consistent with Okumura. It would then have been obvious at the time of invention to one of ordinary skill in the art to utilize similar thicknesses to produce a working device and to combine Wilson et al. with Okumura.

### ***Conclusions***

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Thomas Magee**, whose telephone number is **(703) 305 5396**. The Examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM (EST). If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, **Tom Thomas**, can be reached on **(703) 308-2772**. The fax number for the organization where this application or proceeding is assigned is **(703) 308-7722**.

Thomas Magee  
November 7, 2002

  
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